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10/825,840	04/15/2004	Lawrence E. Gibson	200308693-1	9449

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EXAMINER	
MIGGINS, MICHAEL C	
ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
01/07/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/825,840	GIBSON ET AL.	
	Examiner	Art Unit	
	Michael C. Miggins	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) *43-50* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

REJECTIONS WITHDRAWN

1. All of the 103 rejections, and objection to claim 28 set forth in the non-final rejection of 7/14/08, pages 2-10, paragraphs 2-12 have been withdrawn. The objection to claim 28 is withdrawn due to the fact that claim 28 is currently rejected under obviousness-type double patenting.

REJECTIONS REPEATED

2. The double patenting rejections set forth in the non-final rejection of 7/14/08, pages 10-12, paragraphs 13-14.

NEW REJECTIONS

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews et al. (US 4866133).

Coulman discloses a fluid ejection device (10 from Fig. 1), comprising a substrate (82 from Fig. 1) having means for ejecting a fluid (86 from Fig. 1, column 12, line 49 through column 13, line 10), means for supporting said substrate (12 from Fig. 1), and means for adhering said substrate to said means for supporting said substrate (column 24, line 32 through column 25, line 13), further comprising means for forming a chamber (30 from Fig. 1) and means for forming a nozzle (108 from Fig. 1) and further comprising means for performing logic on said substrate (column 12, line 49 through column 13, line 10). Coulman also discloses that the adhesive used to bond substrate 82 to housing 12 is an epoxy resin (column 24, line 32 through column 25, line 13, no reference numeral is given for the adheisve) since it is specifically stated.

> housing (e.g. housing **12** shown in FIG. **1**) or operatively connected vis one or more tubular ink transfer conduits to a remotely-positioned ink storage vessel (not shown). Regarding use of the printhead **80** in connection with the cartridge **10**, assembly may be achieved as discussed above or in any other manner wherein the printhead **80** is secured to the cartridge **10** so that the printhead **80** is in fluid communication with the ink retaining compartment **30** in the housing **12**. This may be accomplished by the use of conventional adhesive materials (e.g. epoxy resin compounds known in the art for this purpose) which are applied to (1) the housing **12**; and (2) one or more of the substrate **82**, flexible circuit member **118**, and orifice plate **104** as needed in accordance with the particular cartridge **10** under consideration.

Coulman fails to disclose a one part epoxy adhesive which comprises an epoxy resin having a polyglycidyl ether of a polyhydric phenol and a solid cycloaliphatic amine curing agent.

Andrews discloses a one part epoxy (column 1, line 44 through column 2, line 8) adhesive (column 1, lines 5-7) which comprises a viscous liquid (column 6, line 67 through column 7, line 4) epoxy resin having a polyglycidyl ether of a polyhydric phenol (column 2, lines 38-68) and a solid cycloaliphatic amine curing agent (column 5, line 45 through column 6, line 1-5, see columns 8-9, Hardener III, VIII, XXIII, column 9, lines 35-55, Tables 1-2) in the bonding of two surfaces such as metal or plastic (column 7, lines 20-32) for the purpose of providing improved curing times at lower temperatures and improved storage (column 1, lines 44-56, Tables 1-2).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a one part epoxy adhesive which comprises an epoxy resin having a polyglycidyl ether of a polyhydric phenol and a solid cycloaliphatic amine curing agent as the epoxy adhesive in Coulman in order to provide improved curing times at lower temperatures and improved storage as taught or suggested by Andrews.

With regard to the dependent claims Coulman discloses a nozzle proximate to the fluid ejector (108 and 86 from Fig. 1, column 12, line 49 through column 13, line 10), thermal resistor, piezoelectric actuator (column 11, lines 13-38), reservoir fluidically connected to fluid ejector (32 from Fig. 1), fluid definition layer (32 from Fig. 1), a chamber and orifice defining a bore (30 and 54 respectively from Fig. 1), fluid inlet channels and coupled to the chamber (column 12, line 49 through column 13, line 10), a device body coupled to the substrate carrier (34 and 50 respectively from Fig. 1), a reservoir (32 from Fig. 1) coupled to the substrate which is coupled to nozzle (108 from

Fig. 1), a device on the substrate an electrical trace coupling the device to the fluid ejector (demultiplexer, column 12, line 49 through column 13, line 10), further comprises a transistor (column 12, line 49 through column 13, line 10).

With regard to the dependent claims Andrews discloses wherein the glycidyl ether is bisphenol A (column 2, lines 62-63), wherein the cycloaliphatic amine curing agent is epoxy modified (column 6, lines 58-66), wherein the curing agent can be N-aminoalkylpiprazines or bis(4-aminocylcohexyl)methane (column 5, line 65 through column 6, line 5).

5. Claims 2 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews et al. (US 4866133), as applied to claims 1, 3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Petrie (US 4120913).

Andrews discloses an aromatic amine curing agent (column 5, lines 55-57)

Neither Coulman nor Andrews disclose that the glycidyl ether is Bisphenol F.

Petrie discloses the use of Bisphenol F (column 3, lines 1-8) in epoxy adhesives (column 1, lines 5-18) for the purpose of providing long shelf life, low temperature curing and improved joint shear strengths (column 1, lines 39-48).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided Bisphenol F in Coulman in order to provide long shelf life, low temperature curing and improved joint shear strengths as taught or suggested by Petrie.

Petrie discloses that amine curing agents can be solid or liquid (column 4, lines 10-16)

6. Claims 4 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews (US 4866133), as applied to claims 1, 3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Silverbrook (US 6019457).

Coulman fails to disclose wherein said means for ejecting said fluid further comprises means for ejecting essentially a drop of said fluid and the volume of said fluid is in the range of from about 5 femto-liters to about 900 pico-liters.

Silverbrook discloses wherein said means for ejecting said fluid further comprises means for ejecting essentially a drop of said fluid and the volume of said fluid is in the range of from about 5 femto-liters to about 900 pico-liters (column 17, lines 14-21) for the purpose of improving resolution.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided said means for ejecting said fluid further comprises means for ejecting essentially a drop of said fluid and the volume of said fluid is in the range of from about 5 femto-liters to about 900 pico-liters in the fluid ejection device of Coulman in order to improve resolution as taught or suggested by Silverbrook.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews et al. (US 4866133), as applied to claims 1, 3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Boyd (US 3874493).

Coulman fails to disclose a substrate carrier comprising a ceramic chip.

Boyd discloses a substrate carrier comprising a ceramic chip in a printer (column 13, lines 32-52) for the purpose of providing lower costs and/or employing the use of a dot matrix-type ejector.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a substrate carrier comprising a ceramic chip in order to provide lower costs and/or employ the use of a dot matrix-type ejector as taught or suggested by Boyd.

8. Claims 19-21 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews et al. (US 4866133), as applied to claims 1, 3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Feinn (US 6325491).

The one part epoxy is disclosed in Andrews as discussed above.

Coulman fails to disclose a substrate bond pad and electrical interconnection electrically coupled to the substrate encapsulated by an adhesive, wherein the adhesive forms a moat-fill adhesive between the cover and the substrate, wherein the adhesive

forms a glob top substantially encapsulating the electronic device, wherein the adhesive forms an underfill between the substrate carrier and electrical conductor.

Feinn discloses a substrate bond pad and electrical interconnection electrically coupled to the substrate encapsulated by an adhesive (column 8, line 42 through column 9, lines 1-8), wherein the adhesive forms a moat-fill adhesive between the cover and the substrate (Figs. 5-6), wherein the adhesive forms a glob top substantially encapsulating the electronic device, wherein the adhesive forms an underfill between the substrate carrier and electrical conductor (Figs. 4-7) (column 5, line 60 through column 6, line 8, column 6, lines 45-67) for the purpose of improved adhesion of the parts and preventing short circuits.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a substrate bond pad and electrical interconnection electrically coupled to the substrate encapsulated by an adhesive, wherein the adhesive forms a moat-fill adhesive between the cover and the substrate, wherein the adhesive forms a glob top substantially encapsulating the electronic device, wherein the adhesive forms an underfill between the substrate carrier and electrical conductor in the fluid ejection device of Coulman in order to provide improved adhesion of the parts and preventing short circuits as taught or suggested by Feinn.

9. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews et al. (US 4866133) and Feinn (US

6325491), as applied to claims 19-21 and 24-25 above, and further in view of Childers (US 6130695).

Coulman fails to disclose a memory device having at least one parameter of ejectable fluid coupled and communicable to a controller.

Childers discloses a memory device having at least one parameter of ejectable fluid coupled and communicable to a controller (column 14, lines 38-67) in an ink jet printer so that ink containers having a variety of ink volumes may be used (column 2, lines 49-61).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a memory device having at least one parameter of ejectable fluid coupled and communicable to a controller in the fluid ejection device of Coulman so that ink containers having a variety of ink volumes may be used thus lowering costs as taught or suggested by Childers.

10. Claims 32-33 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews et al. (US 4866133), as applied to claims 1, 3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Goel (US 4728384).

Coulman fails to disclose the adhesive containing a thixotrope of fumed silica and fillers of talc.

Goel discloses an epoxy adhesive (column 1, lines 5-12) comprising a thixotrope of fumed silica and fillers of talc (column 3, lines 20-43) in order to prevent sagging.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided the adhesive containing a thixotrope of fumed silica and fillers of talc in the fluid ejection device of Coulman in order to prevent sagging of the adhesive as taught or suggested by Goel.

11. Claims 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews et al. (US 4866133), as applied to claims 1, 3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Chapman (US 5013383).

Coulman fails to disclose the epoxy adhesive further comprising a silane coupling agent between 0.5 and 2.5 weight percent.

Chapman disclose an epoxy adhesive further comprising a silane coupling agent between 0.5 and 2.5 weight percent (column 2, lines 14-27) in order to improve adhesion.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided an epoxy adhesive further comprising a silane coupling agent between 0.5 and 2.5 weight percent in the fluid ejection device of Coulman in order to improve adhesion as taught or suggested by Chapman.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Andrews et al. (US 4866133), as applied to claims 1, 3, 5-6, 8-

13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Baker et al. (US 6299272).

Coulman fails to disclose wherein said fluid ejector actuator is an acoustic actuator.

Baker discloses wherein said fluid ejector actuator is an acoustic actuator (column 1, lines 6-11) in order to control drop size and velocity.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided wherein said fluid ejector actuator is an acoustic actuator in Coulman in order to control drop size and velocity as taught or suggested by Baker.

ANSWERS TO APPLICANT'S ARGUMENTS

13. Applicant's arguments of 10/14/08 have been carefully considered but are deemed unpersuasive.

Applicant's arguments with regards to the Lehmann reference are moot since Lehmann has been withdrawn as a reference. Applicant added the limitation "a viscous liquid one-part epoxy adhesive" which was not disclosed in Lehmann but is disclosed in Andrews as discussed above.

Applicant's remarks with regards to claim 28 are moot since the objection to claim 28 has been withdrawn since claim 28 was rejected under double patenting.

With regards to the double patenting rejection of claims 1-42, the examiner withdrew the double patenting rejections in the non-final rejection of 7/14/08, page 2, paragraph 1 because the double patenting rejection was completely re-written to include analysis of the invention defined in the claims and the difference between what is defined in the instant claims and what is defined in claims 1-31 of US Patent 7,063,413. The rejection was not merely repeated but re-written. Applicant has not provided an argument as to why it would not have been obvious to use the one part epoxy adhesive of Takago instead of the recited two part adhesive recited in claims 1-31.

This action is made final and the case has not been brought to the attention of the supervisory patent examiner in accordance with applicant's request.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Miggins whose telephone number is 571-272-1494. The examiner can normally be reached on 1:00-10:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael C. Miggins/
Primary Examiner, Art Unit 1794

MCM
January 5, 2009